

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



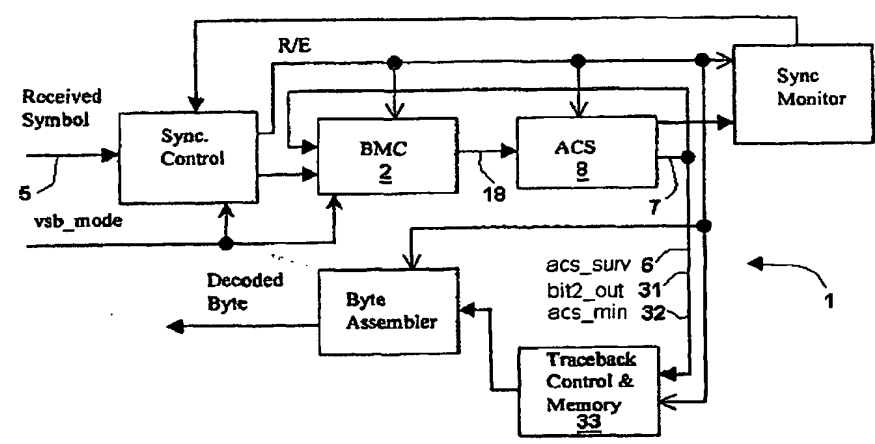
(43) International Publication Date  
30 October 2003 (30.10.2003)

PCT

(10) International Publication Number  
**WO 03/090451 A2**

- (51) International Patent Classification<sup>7</sup>: **H04N**
- (21) International Application Number: **PCT/US03/09862**
- (22) International Filing Date: **1 April 2003 (01.04.2003)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
**60/372,971**      **16 April 2002 (16.04.2002)**      **US**
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- (81) Designated States (national): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**
- (84) Designated States (regional): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**
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- Published:  
— *without international search report and to be republished upon receipt of that report*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **HDTV TRELLIS DECODER ARCHITECTURE**



(57) Abstract: A trellis decoding system (1) for use in processing a High Definition Television signal. The trellis decoding system processes video data in the form of groups of interleaved trellis encoded data packets and includes a traceback unit (33) that identifies a sequence of antecedent trellis states in accordance with a state transition trellis. The delay, re-encoder and trellis demapper elements of previous trellis decoders are eliminated. A branch metric computer (2) includes eight discrete subunits (3), one for each possible trellis state. Each subunit (3) generates two output bits (14, 15) indicative of the two trellis branches exiting the trellis state represented by that particular subunit (3). An add-compare-select unit (8) includes eight discrete subunits (23), each associated with a particular trellis state. Each subunit (23) includes as an input two bits (28, 29) received from the branch metric computer (2) and as an output two bits (6, 31). Bit (31) is chosen from (28) and (29). Bit (6) is chosen from the branch metric information (26, 27) input to each subunit (23). A traceback control and memory unit (33) includes an N to 1 multiplexer (49) which receives as an input the output bits (6, 31) from the add-compare-select unit (8). The present system offers a hardware reduction from prior art.

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